**Methods 1 Revision:**

**Algebra Questions**

*There are 2 similar parts to each question, if you get help with the 1st part try to do the 2nd part by yourself.*

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| **No.** | **Questions** | **Marks** |
| 1(a) | Draw axes with x from -2 to 8, y from -2 to 8.  Use the gradient-intercept method to draw the graph of y = 2x + 1.  Use the cover up method to draw the graph of x + 2y = 8.  Write down the coordinates of the point of intersection. | (5) |
| 1(b) | Draw axes with x from -2 to 8, y from -2 to 8.  Use the gradient-intercept method to draw the graph of y = 3x -1.  Use the cover up method to draw the graph of 3x + 2y = 12.  Write down the coordinates of the point of intersection. | (5) |
| 2(a) | Expand and simplify:  3(2x+1) + 2(5x-2) | (3) |
| 2(b) | Expand and simplify:  5(3x-1) - 2(2x-1) | (3) |
| 3(a) | Factorise:  14x + 21 | (2) |
| 3(b) | Factorise:  10x - 25 | (2) |
| 4(a) | Simplify  x3 × x4 | (1) |
| 4(b) | Simplify  x7 ÷ x2 | (1) |
| 5(a) | Expand and Simplify:  (x+4)(x-5) | (3) |
| 5(b) | Expand and Simplify  (x-3)2 | (3) |
| 6(a) | A square of side 3x has the same perimeter as a rectangle length 3x+1 and width 2x.  Form an equation in x and solve it to find the **area** of the square. | (3) |
| 6(b) | An equilateral triangle with side 2x+1 has the same perimeter as a rectangle length 4x and width x+0.5.  Form an equation in x and solve it to find the **area** of the rectangle. | (3) |
| 7(a) | Solve  5x+4 = 2x+25 | (2) |
| 7(b) | Solve  3y+17 = 7y-15 | (2) |
| 8(a) | Solve by factorising:  a2 - 7a + 10 = 0 | (3) |
| 8(b) | Solve by factorising:  w2 – w – 12 =0 | (3) |
| 9(a) | Simplify:  491/2 | (2) |
| 9(b) | Simplify:  16-3/2 | (2) |
| 10(a) | Factorise:  4a2b – 10ab2 | (2) |
| 10(b) | Factorise:  22pq3+55p2q | (2) |
| 11(a) | Simplify | (2) |
| 11(b) | Simplify | (2) |
| 12(a) | Solve     |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | (4) |
| 12(b) | Solve this equation | (4) |
| 13(a) | Factorise:  3x2 - 7x + 2 | (2) |
| 13(b) | Factorise:  6x2 + 5x + 1 | (2) |
| 14(a) | Write in the form (x + a)2 + b  x2 + 8x +3  *(This is a common way of asking you to complete the square)* | (3) |
| 14(b) | Write in the form (x + a)2 + b  x2 - 6x -12 | (3) |
| 15(a) | Prove, using algebra, that the mean of any 3 consecutive numbers is equal to the middle number | (3) |
| 15(b) | Consider any 3 consecutive numbers.  Prove that the area of a square with side equal to the middle number will always be 1 square unit larger than a rectangle with sides equal to the 1st and 3rd sides. | (3) |